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SELF-FEEDING SYSTEM FOR MARKET RABBITS

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Section of Fur Resources, Division of Wildlife Research

Contents

	Page		Page
Introduction	1	Self-feeding fryer rabbits	3
Feeding grains and milled products	2	Self-feeding roaster rabbits	5
Feeding plant protein supplements	2	Precautions	5
Number of feeds necessary for ration	3	Advantages	5
		Construction of self-feeder	6

Introduction

As the self-feeding system has for some time been proving very satisfactory in fattening hogs, cattle, sheep, and poultry, the thought naturally has arisen that it might also be a good procedure to follow in fattening rabbits for the market. The marked success attained by this system in fattening stock and poultry is largely because each animal has opportunity to select the particular kind of feed its body requires at a given time, and because it eats frequently and slowly and masticates its food thoroughly.

If given a choice of feeds, would rabbits have the ability to select a balanced ration? What feeds would they select? Would rolling, grinding, or pelleting the feeds be beneficial to them? How many different kinds of feed would be necessary to supply them with the proper nutrients? Could the natural scratching habit of the rabbit be overcome and the feeds made available at all times without being wasted?

To answer these questions and to determine the value of the self-feeding system for rabbits, numerous experiments have been conducted at the United States Rabbit Experiment Station, at Fontana, Calif., during the past

two years. After many attempts by the trial and error method, a self-feeding device was constructed that made it possible to keep the various concentrated feeds at all times before the rabbits. Preliminary trials consisted of placing a variety of feeds in the separate compartments of the self-feeder, supplying different combinations, and allowing the rabbits to select and balance their own rations.

Feeding Grains and Milled Products

The rabbits showed a marked preference for certain grains. There was, however, considerable variation in the quantities of grain consumed by the individuals from day to day. On the average, the rabbits ate considerably more oats than any of the other grains; wheat and milo were consumed in about the same proportion and were the second choice; barley proved less acceptable; and cracked yellow corn was practically ignored.

Rabbits of all ages consistently selected the whole grains in preference to the ground, rolled, or pelleted forms. All the rabbits practically ignored any finely ground feed offered. Carefully controlled tests demonstrated that grinding, rolling, or pelleting the cereal grains did not add to their feeding value. In fact, it required more of these milled products than of the whole grains to produce a unit of gain in live weight.

Wheat bran was consumed in very small quantities. The bran constituted only 2-1/2 percent of the concentrate part of the ration selected by the rabbits. No advantage was derived from including so small a proportion.

Feeding Plant Protein Supplements

The rabbits ate sparingly of plant protein meals, such as peanut and soybean, and the question arose as to whether these supplements are necessary in a whole-grain-alfalfa ration; or whether the rabbits ate so little of them because of a dislike for finely ground feed. The protein meals were made, without any binding material, into pellets 3/16 inch in diameter and about 1/8 inch long and were placed in the self-feeders. Immediately, the rabbits took the protein pellets readily and ignored entirely the same feeds in meal form. Some variation in the choice of these different pelleted meals was shown, but on the average the pellets were selected in the following order: Peanut, soybean, sesame, linseed, cottonseed, and hempseed.

The rabbits consumed a considerable quantity of the pelleted proteins. An experiment was conducted to determine how important additional protein is in a whole-grain-alfalfa ration. One group of does and their litters was self-fed a ration of whole grains, alfalfa hay, green feed, and block salt. The fryers from this lot, when weaned at 56 days of age, weighed an average of 3.39 pounds. The average quantity of feed required to produce 1 pound live weight of fryer rabbit, from the time of mating the does until weaning the litters, was

2.62 pounds of concentrates and 1.40 pounds of alfalfa hay. Another lot of does and their litters was fed the same ration plus a pelleted plant protein. The fryers from this lot averaged 3.97 pounds in weight at 56 days of age. In this group, 2.54 pounds of concentrates and 1.04 pounds of alfalfa hay were required to produce 1 pound live weight of fryer rabbit.

It will be noted that the addition of the protein pellets to the whole-grain-alfalfa ration improved it materially and that the rabbits receiving this ration gained much more rapidly and required less feed to produce one pound of gain.

Number of Feeds Necessary for Ration

Various combinations of whole grains and pelleted protein supplements were used in the self-feeders to determine how many kinds of feed were necessary for satisfactory and economical gains in live weight. At least two kinds of grain and one pelleted plant protein supplement were found desirable for feeding with alfalfa hay, although the addition of one or two other types of grain gave a variety to the ration.

Self-feeding Fryer Rabbits

The best quality of fryer rabbit in the Pacific Coast region, as well as in many other parts of the United States, is one that has a live weight of about 4 to 4 1/4 pounds at two months of age, is well finished, and will dress out a carcass (including the liver) of 2 1/4 pounds. Quality and finish of carcass are of prime importance.

Utility breeds are generally used for producing fryers. The New Zealand whites, a breed in which the does average 10 to 12 pounds at maturity, were used in the self-feeder experimental work.

From the time they were mated until they kindled the does were hand-fed once a day in feed crocks or troughs and were restricted to 0.16 pound of a concentrate mixture, consisting of equal parts by weight of whole oats, wheat, barley, milo, and a pelleted plant protein meal, 0.24 pound of a good quality of alfalfa hay, and 0.10 pound of green feed. White block salt and water were available at all times. As soon as a doe kindled, the hand-fed ration was discontinued and she was given a self-feeder in which were placed in separate compartments the whole grains--oats, wheat, milo, and barley--and a pelleted plant protein. One-tenth pound of green feed was fed daily to the doe and this quantity was increased as the litter developed. Alfalfa hay, block salt, and water were before the rabbits at all times.

The young began to eat just as soon as they came out of the nest box. For some time they consumed as much of the pelleted plant protein as of all of the grains combined. As the litter developed the protein consumption gradually decreased and that of the grains increased.

The ration selected by the doe and her litter from the time of kindling until the litter was weaned had a range in nutritive ratio of 1:2.66 to 1:3.00 as the young rabbits grew, that is, the ration contained 1 part of digestible protein to 2.66 or 3.00 parts of digestible carbohydrates and fats.

The litters were weaned at 56 days of age and the does were mated at that time. The self-feeding was discontinued and the does were again hand-fed the restricted ration.

In previous fryer-production studies at the Rabbit Experiment Station, does and their litters were hand-fed 13 different rations, composed of rolled or ground cereal grains with protein supplements, alfalfa hay, green feed, and salt, and for the most part having a nutritive ratio of 1:3.70. In all cases, the quantity of concentrates supplied was so regulated that a good quality alfalfa hay comprised exactly 60 percent of the ration. The fryer rabbits averaged 3.25 pounds live weight when weaned 56 to 65 days of age. The carcass yield of these fryers varied from 42 to 51 percent of their live weight. In these tests 2.12 pounds of concentrates and 3.18 pounds of alfalfa hay were required to produce 1 pound of fryer rabbit.

Several hundred fryers, averaging 4.04 pounds at 56 days of age, were produced with the self-feeder system. On the average, 2.50 pounds of concentrates and 1.04 pounds of alfalfa hay were required to produce 1 pound of fryer. It should be noted that these rabbit when self-fed actually consumed nearly 2 1/2 times as much of the concentrates as alfalfa hay. This heavier grain and protein-supplement consumption is naturally conducive to more rapid gains and results in a higher finished carcass than when the major part of the ration is a roughage. The carcasses of these self-fed fryers were uniform, exceptionally well finished, and of a pearly white color, the fat well distributed throughout, and the carcasses were well covered over the region of the shoulder, the ribs, and the tail head. The carcass yield of the self-fed fryers varied from 50 to 57 percent of their live weight.

Although in self-feeding there is an increased consumption of the more expensive concentrates, it is believed that with the normal relative prices of concentrates and alfalfa hay prevailing in most sections of the country, a pound of high-quality rabbit meat can be produced more economically by this method than by restricting the concentrates. Extremely high prices for concentrates and low prices for alfalfa hay might make the use of a self-feeder impracticable from the economic standpoint.

The self-feeding system has practically eliminated the human factor in feeding operations and has made it possible to produce consistently a standardized and superior quality fryer.

Self-feeding Roaster Rabbits

In some sections of the United States large rabbits are popular for roasting. Well-finished carcasses weighing from 5 to 6 pounds or even more are desired.

An experiment was conducted to determine the value of the self-feeding system for producing roaster rabbits. Forty-four 56-day-old New Zealand does, with an average weight of 4.28 pounds, were given self-feeders containing three or more grains and a pelleted plant protein, each in a separate compartment. Alfalfa hay, block salt, and water were available at all times. One-tenth pound green feed was fed daily.

The 44 self-fed does attained an average weight of 9.7 pounds in 102 days (varying from 79 to 117 days, inclusive). One pound of gain in live weight required 5.5 pounds of concentrates, 2.38 pounds of alfalfa hay, and 1.8 pounds green feed. These rabbits were exceptionally well finished at the end of the experimental period and the carcasses (including the liver) were from 60 to 65 percent of the live weight.

Precautions

The self-feeding system is primarily adapted to raising rabbits for market. This system is not recommended for feeding dry does or herd bucks, or for developing breeding bucks and does. The full feeding of these classes of rabbits would result in their attaining a higher degree of condition than is desirable for breeding rabbits.

The does should be carefully watched the first few days after kindling. If the size of the litter is materially reduced for any reason, or if the doe produces more milk than the young will consume, it may be necessary to adjust the size of the litter by transferring young from another litter or to restrict the doe's ration for a few days to check the heavy milk secretion and avoid udder complications that might follow.

The self-feeder is not adapted for use with a mixed ration that can be separated by the rabbits, as the rabbits in their search for the more palatable kinds of feed will scratch out and waste considerable of the ration. On the other hand, when the different grains and protein supplements are placed in separate compartments, so that the rabbits have free access to any kind of feed at all times, they will consume the particular feed they desire and the quantity wasted will be negligible.

Advantages

The advantages of the self-feeding system are:

1. The self-feeding system has proved satisfactory in developing fryers and roasters for market.

2. It prevents waste and contamination of feed and requires less feed than the hand-feeding system to produce a unit of gain in live weight.

3. Self-fed rabbits gain more rapidly in weight than hand-fed rabbits.

4. Self-feeding saves much labor and makes possible a consistently high-quality market product.

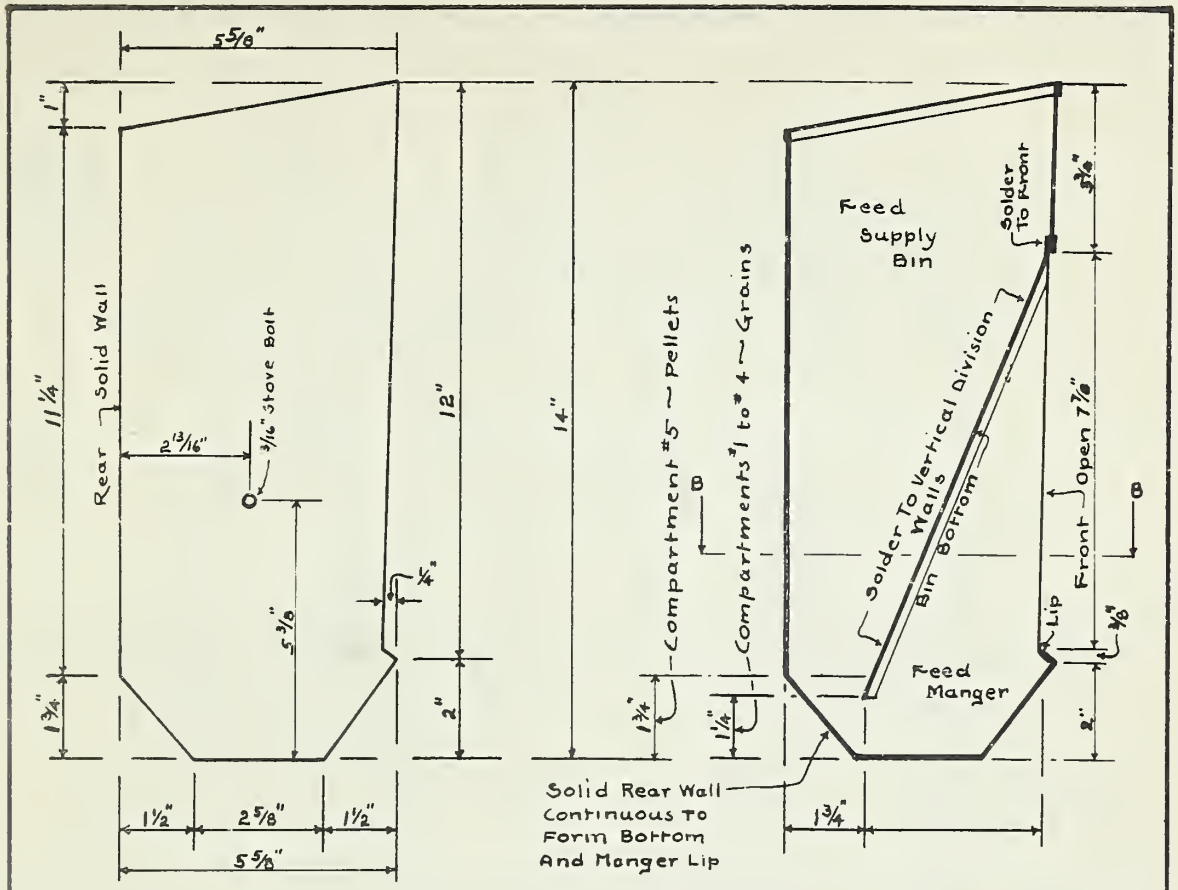
5. Self-fed rabbits attain a high degree of finish. Self-fed fryers give a carcass yield of 50 to 57 percent of their live weight and roasters 60 to 65 percent.

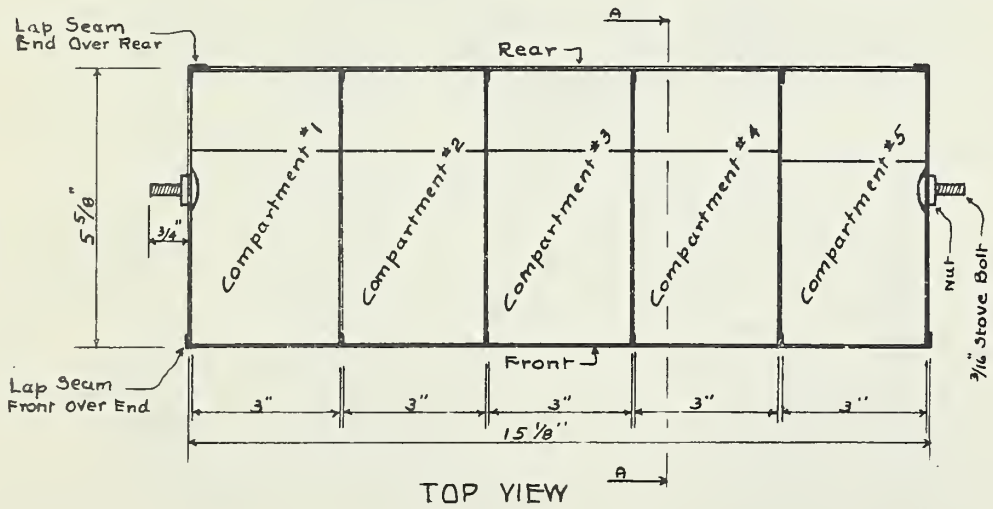
6. The self-feeder prevents inefficiency and carelessness in feeding during the finishing period.

Construction of Self-feeder

The self-feeder is simple in design and can be constructed by any tinsmith. The accompanying drawings contain information concerning the materials required, the method of construction, and the manner of attaching the feeder to the hutches. The one herein designed, when filled about twice a week, has a capacity sufficient to furnish a doe and her litter with all the concentrates required. None of the compartments should ever be allowed to become empty.

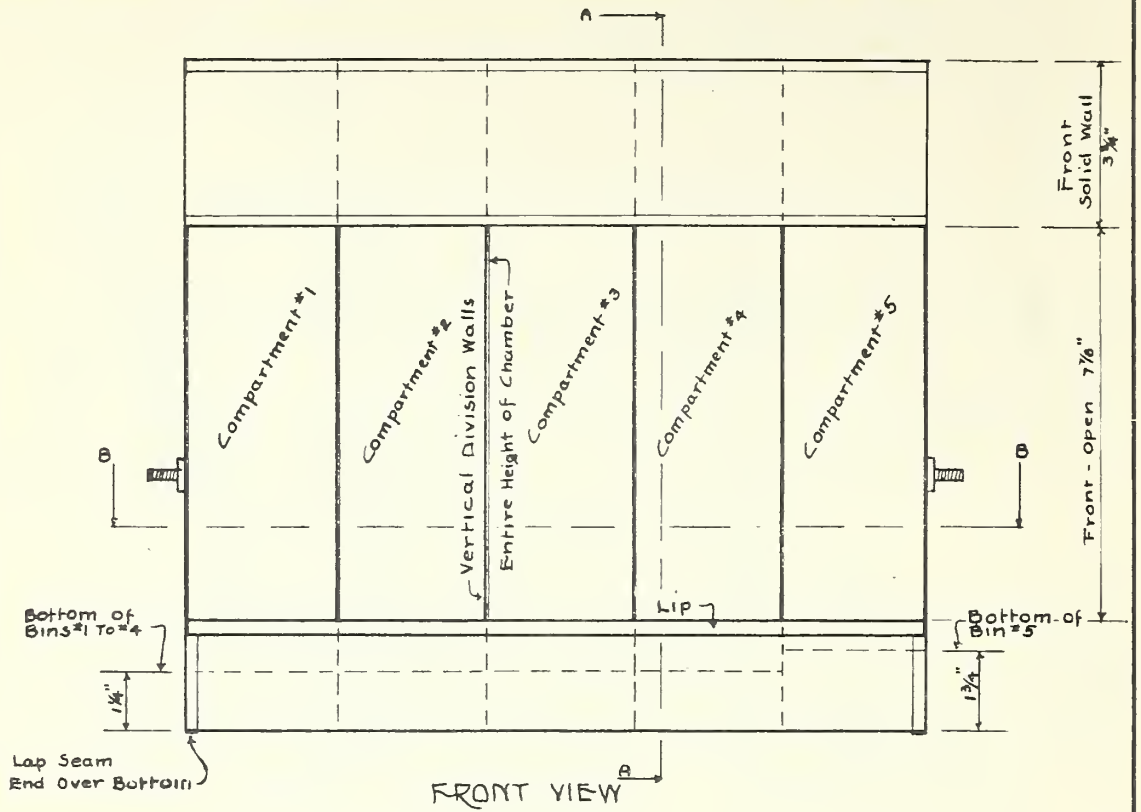
It is important that in constructing the self-feeder the angles of the sides and the size of the throat for each particular type of feed, be as indicated in the drawings, otherwise, the feed may move too freely and be wasted, or the hoppers may become choked and the feed fail to be made available.



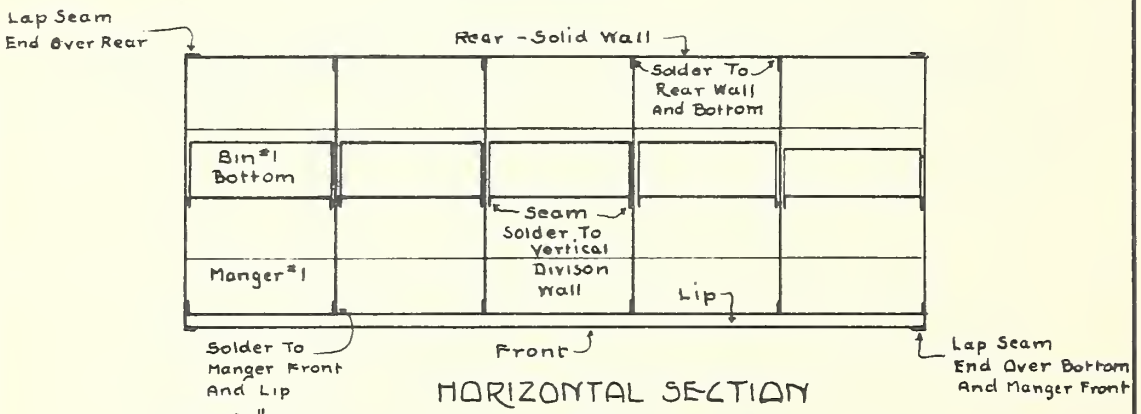


RABBIT SELF FEEDER
SCALE 3"=1' 1936

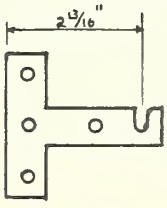
7050



FRONT VIEW



HORIZONTAL SECTION
B-B



SUPPORTING BRACKET
Made From
3½3" T Plate

NOTE ~ Feeder Made of #26 Gage Galvanized Iron ~ All Exposed Edges Hemmed ~ All Seams Securely Soldered.
Top To Fit With All Edges Turned Down ½ Inch.

RABBIT SELF FEEDER
SCALE 3"=1' 1936

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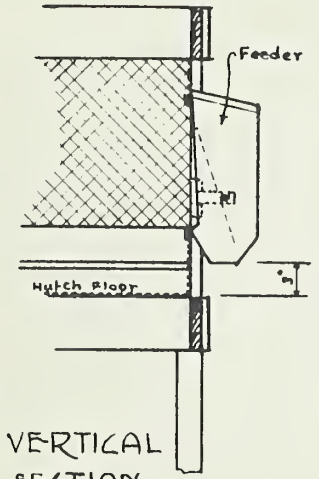
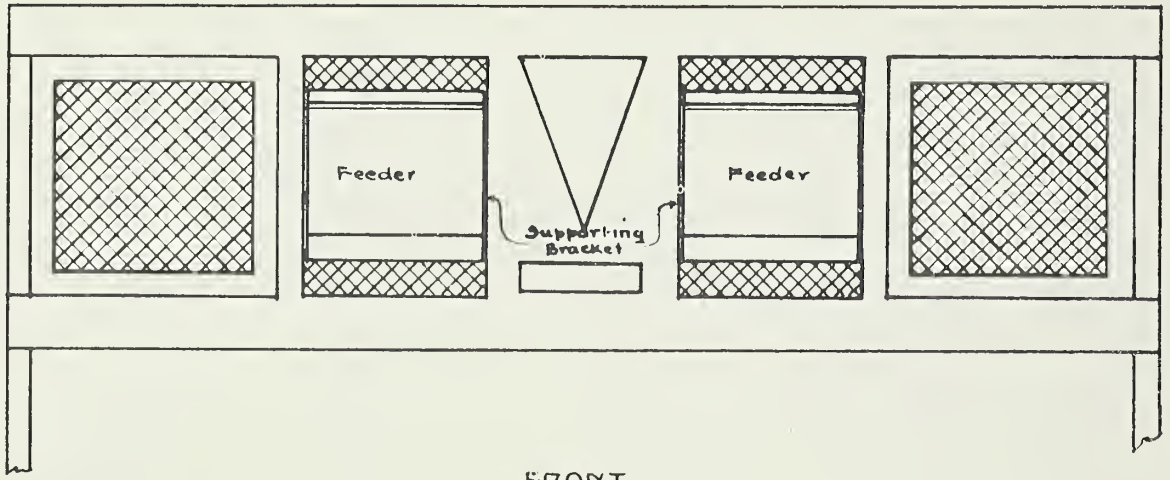
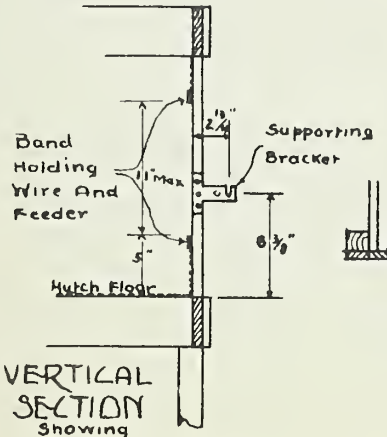


VERTICAL SECTION Showing Feeder



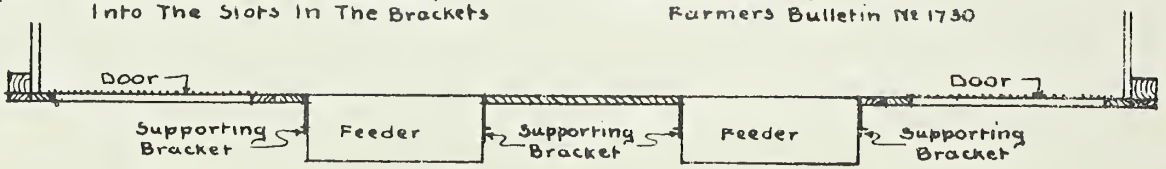
FRONT



VERTICAL SECTION Showing Bracket

NOTE ~ Supporting Brackets Screwed TO Vertical Members Of Hutch Front As Shown. The 3/16" Stove Bolts Projecting From The Feeder Ends, Slip Into The Slots In The Brackets

NOTE ~ The Object Of This Sheet Is To Show The Method Of Mounting The Feeder On The Rabbit Hutch, Only. For Hutch Details See Farmers Bulletin № 1730



HORIZONTAL SECTION THRU FRONT

INSTALLATION OF RABBIT SELF FEEDER

SCALE ¾"=1' 1936

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